

A REVISION OF *DARMISTUS* STÅL
(HEMIPTERA: ALYDIDAE: MICRELYTRINAE)

CARL W. SCHAEFER

Department of Ecology and Evolutionary Biology, University of Connecticut, Storrs, CT 06269-3043, U.S.A. (e-mail: schaefer@uconnvm.uconn.edu)

Abstract.—*Darmistus* Stål, a member of the micrelytrine tribe Micrelytrini, is revised and its three species keyed. These species are *D. subvittatus* Stål, *D. duncani* Van Duzee, and *D. crassicornis* Van Duzee. *Rimadarmistus* Bliven is synonymized with *Darmistus* (**new synonymy**), and *R. messor* and *R. deprecator* are both synonymized with *Darmistus subvittatus* (**new synonymy**). The genus is distributed from Washington State east into Kansas and Nebraska, and south into Costa Rica. The relationships of the genus are obscure; the similarity in its clypeal-paraclypeal relationship to that of *Protenor* Stål suggests a possible affinity. Members of the genus are probably grass-feeders, and males are attracted to carrion.

Key Words: Insecta, Hemiptera, Heteroptera, Alydidae, Micrelytrinae, *Darmistus*, *Rimadarmistus*, *Protenor*, grass-feeding, distribution

Darmistus Stål is a member of the micrelytrine tribe Micrelytrini. It has never been revised, and the keys to its species are either rather difficult to use (e.g., Van Duzee 1937, Torre Bueno 1941) or do not include all three species (Brailovsky and Flores 1979). The descriptions and redescriptions of the genus and of the species also are rather brief. Because representatives of the genus are common in collections from Mexico and the western United States, a revision of the genus is desirable.

The published range of the genus extends from California south into the American southwest, and thence south into Central America. Deay (1928) lists it from Kansas. In addition, I include here records of *D. subvittatus* from Washington State, Wyoming, and Nebraska.

Specimens were studied from the following institutions: California Academy of Sciences (CAS), Texas A&M University (TAMU), University of California at Berke-

ley (UCB), University of Connecticut (UCT), and the National Museum of Natural History, Smithsonian Institution (USNM).

Darmistus Stål 1860
(Figs. 1–2)

Darmistus Stål 1860: 469 (orig. descr.: type species: *Darmistus subvittatus* Stål, monotypy); Stål 1867: 543 (key); Stål 1873: 88 (key); Lethierry and Severin 1894: 100 (cat.); Fracker 1918: 258 (note); Deay 1928: 387 (key).

Rimadarmistus Bliven 1956: (orig. descr.: type species: *Rimadarmistus messor* Bliven, by designation); Froeschner 1988: 10 (cat. N. Amer.). **New synonymy.**

Description.—*Total length* (tip of abdomen): 8.5–11 mm. *General color*: Brown to yellow-brown, except following areas, where heavily punctate with dark punctations: much of medial area of head, prothorax, scutellum (except tip pale), corium (ex-

cept anteriorly where lateral edges bear pale punctures, and tip sometimes pale). Venter pale yellow-brown, thorax with dark punctations laterally; usually with very small red punctations on abdominal venter. *Head*: About twice as long as wide (width behind eyes); parallel-sided behind antennae and behind eyes; paraclypei surpassing clypeus, meeting or nearly meeting in front of clypeus (Table 3, Fig. 1); ocelli small, on small dark brown ocellar tubercle, close to midline, distant from eyes; small brown or pale patch of micropunctations lateral to each ocellus (very indistinct when pale, as in *D. subvittatus*); distinct longitudinal midcephalic sulcus (groove) just anterior to level of anterior border of eye, about as long as width of an antennifer; medial half of head, and narrow band from antennifer to eye and from eye to head's base heavily beset with small dark punctations bearing small dark setae; these absent from lateral one-fourth of head (each side), from region around midcephalic sulcus, from paraclypei, and from antennifers, and sparse to absent medially from midocular level posteriorly to base of head; this absence continuing onto pronotum, giving appearance of a pale median line or stripe; bucculae small, pale, hemispherical, just reaching level of antennifers; underside of head glabrous. Antennal segments often darker than ground color; with setae longer than those on body; segment IV with many small setae; segment I stout, much surpassing head; other segments more slender; segment IV fusiform; measurements and ratios: Table 2. Rostrum reaching onto mesosternum; first rostral segment just reaching base of head; pale, except tip and ventral surface of segments II and III dark. *Thorax*: Pronotum nearly as long as wide, sides evenly and gradually tapering from posterior to anterior; with slight collar demarked posteriorly by low broad transverse ridge not reaching lateral edges; collar and ridge about the same width; posterior margin very slightly and broadly concave, sharply and narrowly declivent; humeral angles bluntly rounded,

subterminally with low rounded callus; pronotum (except transverse ridge) heavily beset with dark punctations, these each bearing a very small dark seta; punctations fewer on transverse ridge (except submedially), becoming nearly absent laterally on pronotum; scutellum 1.5–2 times as long as wide, tip rounded, pale. Legs yellow brown, last tarsal segment and claws darker; setae on legs pale, longer than those on body, dark setiferous punctations making legs appear brown-spotted; each coxa with a small round dark spot laterally and another posterolaterally; fore- and midcoxae nearly touching, hind coxae further apart; hind femora not surpassing abdomen. Forewing as long as or just surpassing abdomen; corium not or somewhat extended posteriorly, lateral margin all or partly pale, apex sharp, color variable; clavus with 4–5 rows of punctures, the lateralmost row removed from others; membrane nearly clear to pale brown. Thoracic venter smooth medially, pleura with dark setiferous punctations dorsally (especially on propleuron); with dark mid-metasternal line. Metathoracic scent gland opening elongate, directed anterolaterally; peritreme slightly raised, evaporative area glabrous, rugose. *Abdomen*: Trichobothria only slightly longer than abdominal setae but less recumbent, their bases dark; spiracles pale. *Male genitalia*: Median extension of genital capsule's ventral rim sharp, prolonged, spinelike.

Type species.—*Darmistus subvittatus* Stål 1860. The date of this publication is often thought to be 1859 (see Froeschner 1988, Brailovsky and Flores 1979, inter al.). However, although Stål's paper is dated December, 1859, the journal itself reads "Stockholm, 1860."

Notes.—The generic description based on holotypes of *Darmistus duncani* Van Duzee and *D. crassicornis* Van Duzee, and on many specimens of *Darmistus subvittatus* Stål.

In 1956 Bliven described *Rimadarmistus*. I have examined type material of the two included species (*R. messor* Bliven and *R.*

deprecator Bliven), and other specimens identified by Bliven. Diagnosing his new genus, Bliven (1956) separated it from *Darmistus* by two characters: The clypeus is longer than the paraclypei (as in *Darmistus*), but "distinctly separated above its apex"; and "the posterior angles of the metapleura [I take these to be the dorso-posterior corners] are bluntly rounded or even truncate" (p. 7). However, the relationship between clypeus and paraclypei of Bliven's two *Rimadarmistus* species and of *D. dumceni* seems to me to be identical. Also, the dorsoposterior corners of the metapleura are rounded in all species of both genera: those of *Rimadarmistus* are somewhat more elongate, but I do not consider this a specific difference, much less a generic one. The entire metapleura of both genera are very similar indeed. In addition, *Rimadarmistus* is smaller than *Darmistus*, judging at least by the type material (Table 1); but the sample size here is too small to draw conclusions as to generic distinctness.

Those being the only generic differences Bliven (1956) presents, and having found no others myself, I synonymize *Rimadarmistus* Bliven 1956 with *Darmistus* Stål 1860.

Breddin (1903) described a genus, *Eudarmistus* Breddin, with a single species, *E. bicolor* Breddin. I have not located any specimens of this species, and what follows is based on the original descriptions. Breddin (1903) wrote that *Eudarmistus* resembles *Darmistus*, and indeed there are many similarities. However, the two genera differ in several important respects: in *Eudarmistus* the distance between the ocelli ("Punktaugen") is equal to the distance from an ocellus to its ipsilateral eye (*Darmistus*: interocellar distance much less); in *Eudarmistus* the fourth antennal segment is the longest (not true of *Darmistus crassicornis* [Table 2]); in *E. bicolor* the rostrum reaches between the hind coxae (*Darmistus*: mid-coxae); *E. bicolor* is 15 mm. long (the longest *Darmistus* is 11.8 mm. [Table 1]). Moreover, the ground color of *E. bicolor* is

dark brown (*Darmistus*: brown to yellow brown); and the "Cicatricaltheil" (I confess I am not sure what this is) of the *E. bicolor* pronotum has "2 konischen Dornenspitzen" (*Darmistus*: no spines, conical or not).

Another important difference of course is that *Eudarmistus bicolor* is described from the Bolivian Andes. *Darmistus* is known only from as far south as Costa Rica. It is possible that a population of *Darmistus* (presumably of *D. subvittatus*, the other species apparently not occurring in Central America) worked its way south, at high relatively cool elevations, and, becoming isolated, differentiated into *Eudarmistus bicolor*. But all of this remains highly speculative until specimens of Breddin's species are available.

Darmistus differs from other New World Microlytrini in a combination of characters: The lack of scutellar or humeral spines, the extension of the paraclypei well beyond the clypeus, and the relatively small size (8.5–11.8 mm.); and in its somewhat northern distribution (western and southwestern United States, into Central America). Its range overlaps with those of *Cydamus* Stål, *Esperanza* Barber, and *Protenor* Stål, although the first of these genera has species extending much further south. (Note: Of the two North American *Protenor* species, *P. belfragei* Haglund is northern and *P. australis* Hussey is recorded only from Florida and Georgia [Hussey 1925]. However, there is a specimen of the latter species from Texas in the National Museum of Natural History [Schaefer unpublished]; and *P. tropicalis* Distant occurs in Guatemala [Distant 1881].) *Cydamus* and *Esperanza* both have scutellar spines (most *Cydamus* also have humeral ones) and neither has the paraclypeal extension. *Protenor*'s paraclypei also extend well beyond the clypeus and this is, indeed, the genus which in most keys shares a couplet with *Darmistus* (Fracker 1918; Stål 1867, 1873; Brailovsky and Flores 1979). However, although the adult *Protenor* lacks spines, as does *Darmistus*, the *Protenor* nymph has short humeral ones

(Schaefer unpublished). The fifth-instar *Esperanza texana* Barber does not have the scutellar spine of its adult (Wheeler and Henry 1984). Other, larger, New World Micrelytrini also have extended paraclypei (*Bactrophyamixia* Brailovsky, *Bactrophya* Breddin, and *Bactrocoris* Kormilev); none has spines as adults, but the nymphs of most are unknown, as is that of *Darmistus*. Similarly, the paraclypei meet in front of the clypeus in one of the two subtribes (Leptocorisidi) of the other micrelytrinae tribe, Leptocorisini (Ahmad 1965); neither humeral nor scutellar spines occur in any stage of the Leptocorisini (as far as is known).

Although genitalia of both sexes provide useful systematic characters in Leptocorisini (Ahmad 1965), only the genital capsule of the male has been studied in Micrelytrini (Schaefer 1980b). I have examined, and discuss below (Discussion), a few features of the capsules of the three *Darmistus* species. However, the determining of phylogenetic relationships of *Darmistus* and other micrelytrines, requires a more thorough study of the *Darmistus* capsule.

For now, one may suggest tentatively that *Darmistus* may be phylogenetically close to *Protenor*; but the qualifications in this statement attest to the fact that the evidence is weak.

Micrelytrini may be divided into two groups, each of which is represented in both the New and the Old Worlds. One group contains small, often ant-mimetic species, and the other contains more elongate species (see Schaefer 1996, 1999). *Darmistus* is a member of the latter group, which has the elongate paraclypei, like members of the leptocorisine subtribe, Leptocorisidi, whose members are also elongate (Ahmad 1965). The value of the extension of the paraclypei in working out phylogenetic relationships is therefore unclear. The only cladistic study of alydid genera (Li and Zheng 1993) did not include any New World Micrelytrinae.

Darmistus also belongs to what I have

called "primitive grass-feeders," a category of Alydidae based on relative elongation of the body (total length relative to greatest width; indices 19–28; *Darmistus*' index is 22.7) (Schaefer 1972). *Esperanza*, *Darmistus*, and *Cydamus* are the New World members of this grade, to which I now add *Trachelium*. Despite my categorization of them, in 1972 I had no evidence that any of these genera did in fact feed on grasses. Since then, Wheeler and Henry (1984) have confirmed my prediction that *Esperanza texana* Barber is a grass-feeder, and a *Cydamus* species has been found to be a pest of range grasses in Colombia (D. Forrero, personal communication).

One specimen of *Darmistus subvittatus*, from San Pedro de Montes de Oca, Costa Rica, bears a label "on Pennisetum clandestinum Choiv." *Pennisetum clandestinum* is an east-African rangeland grass ("kikuyu") invasive in Central and North America; in the latter it is considered a pest (C. Schlichting, personal communication). Thus, there is now some evidence that a species of *Darmistus* too feeds on a grass.

In mid-May, 2002, 33 specimens of *D. duncani* and 6 specimens of *D. subvittatus* (all long-corium form) were collected in carrion-baited pitfall traps in the Davis Mountain Resort (Texas). All 39 specimens were male, which suggests carrion resembles the females' sex pheromone. Carrion is attractive to alydids (especially alydines), and it has been thought that the bugs are attracted to a source of soluble nitrogen (Schaefer 1980a). However, because the alydids thus attracted were not sexed, it is possible they were males drawn to carrion for sex, not food. In a review of heteropterans feeding on carrion and fecal matter, Adler and Wheeler (1984) found more records for Alydidae (all Alydinae, mostly *Alydus*) than for any other family, including families with more species (to these records may be added *Neomegalomus parvus* (Say) [Ventura et al. 2000]). Moreover, nearly all records were on carrion, a larger percentage than for any other family. Two references

clypei not quite meeting in front of clypeus (Fig 1A) *Darmistus duncani* Van Duzee
 — Antennal segments I-III not polished, pale to light brown; paraclypei meeting in front of clypeus (Fig. 1C) *Darmistus subvittatus* Stål

Darmistus subvittatus Stål 1860
 (Figs. 1C, 2)

Darmistus subvittatus Stål 1860: 469 (orig. descr.); Distant 1881: 160, plate 15, fig. 10 (Mexico, color figure); Lethierry and Severin 1894: 100 (cat.); Gillette and Baker 1895: 19 (Colorado); Snow 1906: 151 (Texas); Banks 1910: 74 (cat.); Van Duzee 1916: 13 (list); Van Duzee 1917: 108 (cat.); Fracker 1918: 258 (redescr., U.S. distrib.); Deay 1928: 388 (distrib., transl. of orig. descr.); Blöte 1934: 271 (museum list); Froeschner 1988: 10 (U.S. distrib.).

Rimadarmistus messor Bliven 1956: 7 (orig. descr.), **new synonymy**.

Rimadarmistus deprecator Bliven 1956: 7 (orig. descr.), **new synonymy**.

Description.—*Total length* (end of abdomen): 9.25 mm. (male), 10.30 mm. (female). *Head*: Patch of micropunctures lateral to ocelli small, oval, punctations very small and difficult to see, some on pale and some on dark regions of head; band of dark punctations on either side of head extending a very short way onto genae; paraclypei meeting in front of clypeus (Fig. 1C); base of clypeus with a few to many dark punctations, apex with few; paraclypeus with many dark punctations medially and on sides, fewer in between, leaving pale "line" laterally; antennifers small, dirty yellow, without dark punctations; bottom of mid-cephalic sulcus dark brown; antennal segments I-III with a few long erect or suberect setae, more pale than IV, I often darker than II-III, II-III usually darker apically, IV with many small suberect setae; I and IV darker than II and III, II and III dark apically; I-III with brown spots; I more robust than IV, IV more robust than II and III; antennal measurements: Table 2; underside of head glabrous, with or without small

red spots. *Thorax*: Pronotum densely punctate, sparsely setose with small recumbent setae; brown except lateral margins, medial "band," and a pair of poorly defined incomplete (posteriorly) "bands" yellow (= absence of dark punctations); pronotal transverse ridge poorly defined; propleuron heavily punctate dorsally, less so ventrally; not setose; meso- and metapleura less heavily punctate, dark punctations ending abruptly or not ventrally; dark line from midcoxa to anterior edge of mesosternum complete or interrupted; black medial line extending from base of rostrum to abdominal sternum 6, sometimes becoming obscure (or sometimes lacking) posteriorly; this band thickest on anterior abdominal sterna; scutellum heavily punctate, not pubescent, dark yellow brown, apex pale; clavus of hemelytron brown, with four longitudinal rows of punctations, these arranged somewhat irregularly longitudinally; corium brown, heavily punctate, lateral margin white or yellow to apex (rarely, brown), apex often white or yellow laterally and dark medially, extended (ending near level of posterior edge of abdominal sternum 6) or not (ending at level of anterior margin of sternum 6) (see Variation, below); membrane brown, clear. Legs yellow brown, with brown spots; tibiae lightly, femora more heavily setose with long erect setae; both coxal spots dark; third tarsal segment and claws dark. Peritreme of metathoracic scent gland apparatus raised, rounded, distinct, with medial groove. *Abdomen*: Setose with erect setae medially to sublaterally, pubescent medially to spiracular line; yellow; with a few small brown spots lateral to midsternal line, and with small red spots throughout (fewer on spiracular line). *Measurements*: Tables 1-2.

Material examined.—long-corium form (see Variation, below): UNITED STATES: *Arizona*: Huachuca Mts. [Cochise Co.], Ariz., 7-8-32 (2 specimens) (CWS); Huachuca Mts., Ariz., July 13 '05 (USNM); same, July 29 '05 (USNM); Huachuca Mts., Ar., VIII-19-50 (2 specimens) (USNM);

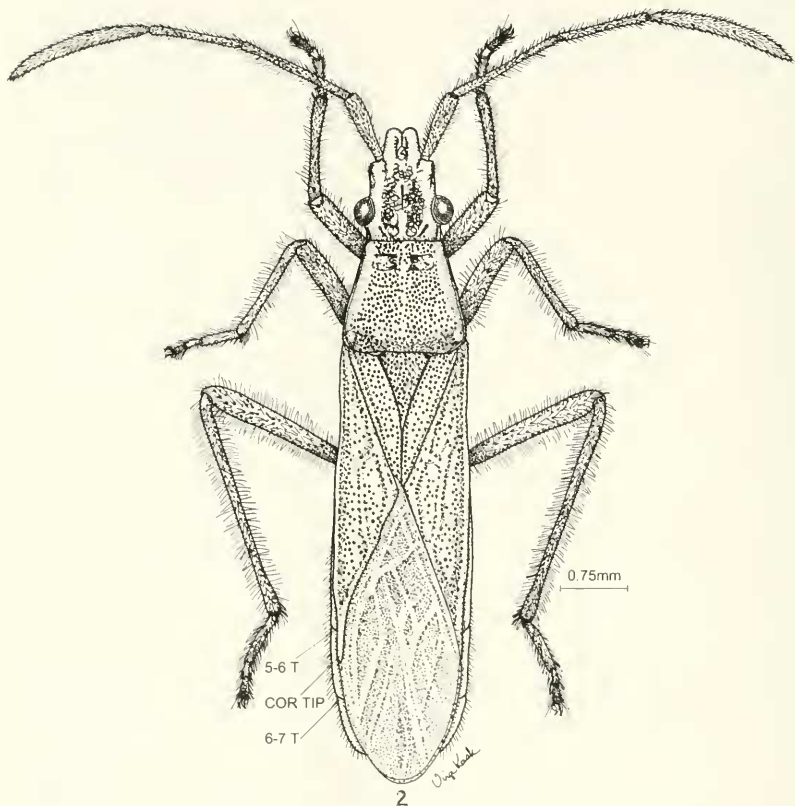


Fig. 2. Dorsal view of *Darmistus subvittatus* (long-corium form). COR TIP = tip of corium, 5-6T = fifth-sixth abdominal segmental border, 6-7T = sixth-seventh abdominal segmental border.

Huach. Mts. [Cochise Co.], Ariz. [no date; additional label: Brooklyn Museum 1929] (USNM); Sunnyside Cn., W. side Huachuca Mts., Cochise Co., 6,000 ft., 4-VIII-52 (CAS); Douglas [Cochise Co.], Ar., 3/22/33 (UCB); Hereford, [Cochise Co.], Ariz., 10-9-27 (missing head) (UCB); Chiricahua Mts. [Cochise Co.], Ariz., June 9 1933; Nogales, St. Cruz Co., Ariz., VIII-31-06 (USNM); Patagonia [Santa Cruz Co.], Ariz., Aug 23, 1937 (3 specimens) (USNM); Patagonia [Santa Cruz Co.], Ar., 10-23-37 (USNM);

Santa Cruz Co. nr. Tubac, VIII-11 1932 (USNM); ARIZSCruzR, near Tubac [Santa Cruz Co.], 10-23-37 (3 specimens) (USNM); ColCanyon [?], Ar., 12-7 (USNM). *California*: Eureka [Humboldt Co.], CA., Elk R., 24/X/1972 (CAS); Eureka, Cal., IX-15-59 (CAS); U.S.A., California, Humboldt County, Eureka, 14-II-1963 (CAS); same, 17-V-1957 (CAS); U.S.A., California, Humboldt County, Falk, 15-VI-1958 (CAS); same, 1-IX-1957 (CAS); same, 1-XI-1970 (CAS); Huntington Beach [Orange Co.], Cal., 3-30-

Table 1. Measurements (mm) of *Darmistus* species.

Species	Total Length to End of Wings (a)	Total Length to End of Abdomen (b)	Pronotal Width (Humeral Angles) (c)	Ratio (c/b)	Length Forewing (d)	Length Corium (e)	Ratio (d/e)
<i>Rimadarmistus messor</i>							
holotype ♂	9.10	8.71	1.67	0.19	5.98	4.42	1.35
<i>R. messor</i> allotype ♀	10.14	10.01	1.78	0.18	—	—	—
<i>R. deprecator</i>							
holotype ♂	9.10	8.45	1.65	0.20	5.98	4.42	1.35
<i>R. deprecator</i> allotype ♀	9.75	9.95	1.78	0.18	—	—	—
<i>Darmistus crassicornis</i>							
holotype ♂	11.38	10.92	2.15	0.20	7.15	4.68	1.52
<i>D. duncani</i> holotype ♀	11.83	10.92	2.35	0.22	7.80	5.07	1.54
<i>D. subvittatus</i> (2 ♀)*	10.40	10.30	2.02	0.20	7.15	5.20	1.38
<i>D. subvittatus</i> (3 ♂)*	9.86	9.25	1.89	0.20	6.63	3.70	1.38

* From northern part of range.

45 (2 specimens) (USNM); Laguna Beach [Orange Co.], Calif. [no date] (CAS); Ft. Cronkite, Marin Co., Calif., IX-1-1957 (CWS); Rio Vista, Solano Co., Calif., iv-19-50 (CWS); *Colorado*: Boulder [Boulder Co.], March 18 (USNM); Boulder, Colo., March 20 (USNM); Boulder, Colo., March 22 (USNM); Delta [Delta Co.], June 25 1938 (USNM); Denver [Denver Co.], Colo., IV-22, 1961 (TAMU); same VIII-7, 1963 (TAMU); Ft. Collins [Larimer Co.], Colo., 9-15-28 (year obscure) (UCB); same 9-15-28 (USNM); same 9-11-28 (USNM); same 10/19/29 (2 specimens) (USNM); Clear Cr[ee]k Can[yon], Col., 1926-27 (USNM); N.E. Col. [no further data] (USNM); Colo. [no further data] (2 specimens) (USNM). *Nebraska*: Glen Sioux Co., Neb., Aug 1903 (4 specimens) (USNM); Extreme nw. corner, Brown Co., Nebraska, June 10, 1950 (UCT). *New Mexico*: Albuquerque [Bernalillo Co.], N.M., 8.27-46 (USNM); Mesilla [Socorro Co.], Feb. 22 (USNM). *Texas*: Brownsville [Cameron Co.], Tex., 1/18/23 (USNM); Brownsville, Tex., V-8 33 (USNM); Brownsv[il][e], Tx., 1-4-32 (USNM); Jeff Davis Co., Davis Mts. Resort, upper Limpia Creek Cyn., 6,180 ft., IV-12-14-2002, car-ri-on-baited pit-fall (6 specimens, all male) (TAMU). *Utah*: Zion Park [Washington Co.], Utah, 8/1/28 (USNM). *Washington*:

Duckabush [Jefferson Co.], Wn., 7/31/47 (2 specimens) (UCT). *Wyoming*: Medicine Bow National Forest, Albany Co., Wyo., IX-4-1951 (UCT). MEXICO: *Chiapas*: 6 km n. San Cristobal, August 3, 1990 (2 specimens) (TAMU); 12 mi. east Huixtan, September 15, 1990 (TAMU); Mpio: San Cristobal San Felipe, 7,200', August 5, 1990 (TAMU). *Chihuahua*(?): Mexico, El Paso [?Ciudad Juarez], 4-23-46 (USNM). *Colima*: 10 mi. ne. Comala, July 17-19, 1983 (TAMU). *Durango*: 19 mi. SE Durango, Dgo., VII-16-59 (TAMU). *Guadalajara*: [no further data] (13 specimens) (CAS). *Gu-anajuato*: 1 mi. n. Santa Rosa, April 8, 1990 (TAMU). *Jalisco*: 1 Sept. 1938 (CWS). *Guerrero*: 0.2 mi. w. Cacahuamilpa, July 6, 1974 (TAMU); 2.5 mi. ne. Cacahuamilpa, July 6, 1974 (TAMU); *Guerrero*(?): Mexico, Tasco [?Taxco de Alarcón], VIII 1955 (USNM); *Jalisco*: 20 mi. W. of Tecolotlan, 15 Sept. 1938 (3 specimens) (CWS); 10 mi. E. of unton de Tula, 16 Sept., 1038 (CWS); 6 miles east of Lago de Moreno, July 29, 1978 (TAMU); Nevada de Colima road, 14 m. w. hwy. junct. (near Atenquique), April 20, 1977 (2 specimens) (TAMU); 12 mi. w. Poncilan, Jal., Mex., VII-24-66 (TAMU); 4 mi. sw. Tuxpan, Jal., Mex., VII-19-66 (TAMU); 1 mi. E. Jalisco, Nararit St. Line, Guadalajara, Hwy., Mex., VIII-21-1984

(TAMU); 32 miles southwest Guadalajara, Jal., VII-22-66 (TAMU); Chapala, Mex., Aug. 1949 (UCT). *México*: 4.3 mi. no. Ixtapan, July 6, 1974 (TAMU); Tejupilco [de Hidalgo], Mex., Temescaltepec, VII-1932 (2 specimens) (UCB); same data, VI-24-33 (UCB); Rio de Arriba, Temescaltepec, Mex., VI-9-33, Top of hill, alt. 5000 ft. (UCB) Ciudad, Méx., 8,100 ft., [no date] (USNM). *Michoacán*: 6 mi. n. Cheran, July 6-7 1985 (TAMU); 6 mi. south Cheran, July 23 1983 (TAMU); 5 miles west Jacona, Mich., Mex., VII-18-66 (TAMU); 10 miles East of Tuxpan, Mich., Nov. 22, 1955. *Morelos*: Morelos, Mex., 7-14-36, 135 Kil. S. of Mexico City (CWS); Tepoztlan, Morelos, Mexico, 8-20-56 (2 specimens) (USNM); Cuernavaca, Morelos, June (USNM); Cuernavaca, Mor., Mexico, X-1944 (USNM); same, VI-45 (USNM); Mexico, Morelos, Cuernavaca, VIII-31-44 (USNM); Mexico: Mor. Cuernavaca, XI-1966 (USNM); Cuernavaca, Mex., Crawford [collector?] (CAS); Mexico, Cuernavaca, 27 July 1938 (CWS); 5.1 mi. E. Cuernavaca, 5,000 ft., 29 June 1973 (TAMU); 4.4 mi. e. Cuernavaca, July 6-7 1974 (TAMU). *Nuevo León*: 12.4 mi. northeast Doctor Arroyo, July 8, 1986 (TAMU). *Oaxaca*: Oaxaca, Crawford [collector?] (2 specimens) (CAS); Oaxaca, Oaxaca, Mex., VII-8-52 (CWS); 15 mi. SE Tamazulapan (USNM). *Puebla*: Xicotepec de Juarez, April 29, 1984 (TAMU); 3.7 mi. S Zaca-poaxtla, 23-VII-1985 (TAMU). *Tabasco*: Jalapa, Crawford [collector?] 6 September 1972 (CAS). *Vera Cruz*: Cordoba, Mex., I-1-40, 3 mi. E. (CAS); Vera Cruz, Mex. [no further data] (USNM); 3 mi. NE Huatusco, July 23, 1984 (5 specimens) (TAMU); 3 miles n. Banderillo, April 17, 1979 (TAMU); 34 km. n. Naolinco, Alt. 4,100' April 20-21, 1978 (TAMU). NO LOCALITY: 9/4/35 (UCB).

Short-corium form: UNITED STATES: *Arizona*: Safford [Graham Co.], Ariz., July 20 1914 (2 specimens) (USNM); Huach[uca] [Cochise Co.], Ar., 6-15-30 (USNM). *California*: Santa Catalina Island [Los Angeles Co.], Cape Canyon, 850 feet,

land [?], 3 July 1976 (USNM); Los Angeles Co., CAL., [no date] (USNM); Marin Co., CA [no date] (USNM); Eureka [Humboldt Co.], Elk R., 10.VI-1979 (CAS). *Colorado*: Fremont Co., 15 mi. N. of Canon City, 31 May 1987 (USNM); Semper [Jefferson Co.], COLO, May 25, 1919 (USNM); Boulder Co., VIII-10 1932 (USNM). *Nebraska*: Extreme nw. corner, Brown Co., Nebraska, June 10, 1950. *New Mexico*: Pecos [San Miguel Co.], N.M., July 8 [no year] (USNM). *Texas*: TEXAS: Jeff Davis Co., Davis Mts. resort, (D. Marqua residence), V-10-17-1993 (TAMU); [Jeff Davis Co.], Madera Canyon, west of Ft. Davis, Jeff Davis Co., Texas, August 9, 1969 (TAMU). *Wyoming*: Medicine Bow National Forest, Albany Co., Wyo., IX-4-1951 (2 specimens) (UCT). MEXICO: *Guadalajara*: [no further data] (5 specimens) (CAS); *México*: Tejupilco [de Hidalgo], Mex., Temescaltepec, VI-17-33 (4 specimens) (3 in UCB, 1 in CWS); same data, VI-16-33 (UCB); same data, VI-18-33 (UCB); Bejucos, Mex., Temescaltepec, VII-3-33 (UCB); Real de Arriba, Temescaltepec, VII-11-33, Mex. (UCB); same data, VII-8-33 (UCB); same data, V-28-29-33 (UCB). *Morelos*: Morelos, Crawford [collector?] (CAS); *Oaxaca*: 4 mi. NE. Miltapec, 21-7-1984 (TAMU). *Puebla*: 4 mi. sw. Acatepec, July 11, 1973 (TAMU). GUATEMALA: Yepocapa, Guatemala, Aug 1948 (2 specimens) (USNM); same, June 1948 (USNM); Yepocapa, Guat., July 1949 (2 specimens) (USNM); Guatemala, Sololá, Panajachel, 28 Apr. 1956 (USNM). COSTA RICA: Costa Rica, 10 km N San José, July 71 (USNM); San Pedro de Montes de Oca CR [and] Barba, CR, Nov. 28, '35 [note label also gives host plant, "on Pennisetum clandestinum Choiv."'] (USNM). Uncertain: "Mexiq" (USNM).

Other records (published).—UNITED STATES: *Colorado*: Fort Collins [Larimer Co.], June 25th; foot hills five miles west of Ft. Collins, March 12th to June 12th" (Gillette and Baker 1895, p. 19); Colorado Springs [El Paso Co.], 1934 (2 specimens)

Table 2. Lengths (mm) of antennal segments of *Darmistus* species (measurements from holotypes, except *Darmistus subvittatus*).

Species	Antennal Segments				Ratio 1/2
	I	II	III	IV	
<i>Darmistus duncani</i>	1.10	1.90	1.52	2.18	0.63
<i>D. crassicornis</i>	1.19	2.18	1.82	1.95	0.55
<i>D. subvittatus</i>	1.19	1.91	1.65	2.21	0.62
<i>Rimadarmistus messor</i>	1.04	1.57	1.35	1.82	0.66
<i>R. deprecator</i>	0.99	1.56	1.32	1.85	0.63

(Blöte 1934 1934, p. 271). MEXICO: "Mexico" [holotype, Stål 1860]. *Durango*; *Estado de México*; *Guerrero*; *Morelos*; *Nuevo León*; *Oaxaca*; *Puebla*; *Veracruz* (Brailovsky and Flores 1979, map 10); *Jalapa* [Tabasco], 1934 (4 specimens) (Blöte 1934, p. 271).

Distribution.—Coastal North America from Washington State and California, east into Kansas and Nebraska, south through Mexico into Guatemala and Costa Rica.

Variation.—In one specimen (from Tejupilco, México State), the paraclypei do not actually touch in front of the clypeus, but are nevertheless closer to one another than in either of the other two species; however, this specimen was collected with others in which the paraclypei do meet. Also in a few specimens, the pale midcephalic line is more diffuse than in most specimens; this is caused by a less sharp separation between the dark-punctated and nonpunctate (narrow medial) regions of the head's dorsal surface. The dark punctations on the meso- and metapleura end sharply sublaterally in some specimens, and end much more gradually in others; in the former case, the dark punctations appear as a dark band.

There appear to be two forms of *Darmistus subvittatus*, differing in the color and extension of the corium. In most specimens, the corium is extended well beyond the level of the anterior margin of the sixth abdominal sternum; in these specimens the corial tip is usually (but not always) white or pale yellow laterally, dark medially, and pale at the apex. However, in some specimens from central México (States of Méx-

ico, Morelos, and Michoacán) and south into Central America, and from the United States, the tip of the corium resembles that of *Darmistus crassicornis* and *D. duncani*, ending at the level of the anterior margin of the sixth abdominal sternum, and being (usually) uniformly brown. That these do not represent a new species is suggested by the presence among them of several individuals with the elongate pale-tipped corium (see also Discussion).

As Table 3 suggests, in nearly all *Darmistus subvittatus* the paraclypei meet in front of (and indeed slightly above) the clypeus, the corium is long (reaching beyond the level of the fifth-sixth abdominal suture), and the black midsternal line of the abdominal sternum is complete (onto the seventh sternum) or nearly so (onto the fifth sternum, indicated by "1/2" in Table 3). There seems to be no particular pattern or correlation among these character states, nor with any geographic locality.

Historical note.—The specimens from México State were collected in 1933 by two entomology students at The University of California, Berkeley. To earn money in the Great Depression, Robert L. Usinger and Howard Hinton hitchhiked and freight-hopped their way to central Mexico, there to collect insects and sell those they did not want. Their adventures on this collecting trip (protected in part by Hinton's experience as a college boxer) are recounted in Usinger's reminiscences (Usinger 1972). This account includes a map of the collecting areas, and a description of their headquarters, the village of Tejupilco.

Table 3. Character states of paraclypei, abdominal line, and corium in *Darmistus duncani* and *D. subvittatus*.

Specimen	Paraclypei Meeting in Front of Clypeus	Dark Abdominal Line	Corium (s = short, l = long)	Number Specimens
<i>D. duncani</i> (holotype)	0	0	s	1
<i>D. subvittatus</i> :				
Solano Co., Calif.	+	1/2	l	1
Eureka, Calif.	+	+	l	1
Eureka, Calif.	+	+	s	1
Humboldt Co., Calif.	+	+	l	2
Humboldt Co., Calif.	+	1/2	l	1
Laguna Beach, Calif.	+	+	l	1
El Paso, Tex.	+	+	l	1
Morelos, Mexico	+	0	s	1
Morelos, Mexico	+	+	l	1
Jalisco, Mexico	+	+	l	3
Oaxaca, Mexico	+	1/2	l	1
Cuernavaca, Mexico	+	+	l	1
Tejupilco, Mexico*	+	+	l	3
Tejupilco, Mexico*	+	1/2	s	4
Tejupilco, Mexico*	0	1/2	s	1
Bejucos, Mexico*	+	0	s	1
Real de Arriba, Mexico*	+	1/2	s	3
Real de Arriba, Mexico*	+	1/2	l	1
Guadalajara, Mexico	+	+	l	12
Guadalajara, Mexico	+	1/2	s	5

* Expedition of Usinger and Hinton (Usinger 1972).

Notes.—Bliven (1956) separated his two *Rimadarmistus* species in his description of *R. deprecator* as follows: "a little smaller, with head constricted behind the eyes, pre-cellular pits obsolescent, antennae slender, disc of pronotum depressed with calli distinct and underside extensively dotted with red" (pp. 7–8). I have examined the holotypes and allotypes of both species, and find hardly any of these differences. I did find the following differences, however: The band of dark punctures laterally on the head extends onto the genae in *R. deprecator* (and *D. crassicornis*), but not in *R. messor* (or the other *Darmistus* species). The posterior corners of the bucculae of *R. deprecator* are slightly more sharply rounded than in *R. messor* or the *Darmistus* species. The posterolateral spots on all coxae in *R. deprecator*, but only on the fore coxae of *R. messor*, are pale. The calli of *R. deprecator* are slightly more distinct than are those of *R. messor*. And the former has

more red spotting on the venter of head and abdomen (the *R. messor* allotype has some spotting also, although the holotype does not). Red spotting, or an occasional suffusion of red, are not uncommon in pale corioids (quite common in Rhopalinae). None of these differences is enough to distinguish species. In addition, in all respects, including the relative shape of the bucculae, the medial extension of the genital capsule, and the black medial abdominal stripe, the holotypes and the allotypes of both Bliven's species resemble *Darmistus subvittatus* Stål. I therefore synonymize *Rimadarmistus deprecator* Bliven 1956 and *Rimadarmistus messor* Bliven 1956 (which has priority, being printed first on p. 7) with *Darmistus subvittatus*.

Finally, both Bliven's species come from Humboldt County (including Eureka), California. In the CAS collection are many unidentified *Darmistus subvittatus* collected by Bliven himself in Eureka and elsewhere

in the County, from 1957 to 1973. If Bliven had believed these specimens to be either of his two species, he would certainly have so labelled them. That he did not, suggests he had his doubts.

Darmistus crassicornis Van Duzee 1937
(Fig. 1B)

Darmistus crassicornis Van Duzee 1937: 28 (orig. descr.); Froeschner 1988: 10 (U.S. distrib.)

Description (based on holotype).—*Total length* (end of abdomen): 10.92 mm. *Head*: Patch of pale micropunctures lateral to ocelli small, oblique; band of dark punctations on each side of head extending anterior to antennifer onto genae; paraclypei not meeting in front of clypeus (Fig. 1B); bases of clypeus and paraclypei with some dark punctations, apex of clypeus with very few punctations; antennal tubercles well developed, yellowish, with many brown spots; bottom of midcephalic sulcus pale; antennal segments I–IV uniformly colored, I–III heavily setose, setae long, conspicuous; segment I robust, dilated, same color as head, with many dark spots; segments II and III yellow brown and cylindrical; segment IV somewhat robust, dark reddish brown, appearing smooth but with many very small setae; antennal measurements: Table 2; underside of head glabrous, with scattering of small red spots. *Thorax*: Pronotum heavily pubescent, densely punctose, yellow brown, except lateral margins and medial "band" pale yellow (absence of dark punctations); pronotal transverse ridge poorly defined; dark punctations on pronotum irregularly concentrated sublaterally, forming pair of poorly defined dark bands from posterior margin of pronotum to about midway anteriorly; propleuron heavily pubescent; prosternum less heavily pubescent; pleural margins of thorax pale yellow, sparsely punctate dorsally, punctations dwindling in number to none ventrally; dark interrupted line from mid coxae to anterior edge of mesosternum; black midme-

tasternal line continuing anteriorly along mesosternum and posteriorly on abdomen to sternum 7; scutellum pubescent, heavily punctate, yellow brown, apex pale yellow; clavus of hemelytron yellow brown, with 4 longitudinal lines of punctations, these regularly arranged longitudinally; corium yellowish, lateral margin pale for nearly its entire length, apex brown, not greatly extended (ending at level of anterior margin of abdominal sternum 6), densely punctate; membrane nearly colorless, clear. Legs heavily setose; both coxal spots dark; femora yellow anteriorly, medially, and posteriorly, with many spots (these fewer basally), and with well-defined hairs; tibiae pubescent, pale yellow, with dark spots; tarsi without spots. Peritreme of metathoracic scent gland round, indistinct, with medial groove. *Abdomen*: Sternum sparsely pubescent; pale yellow, with few punctations, with many small red spots like those on head's venter (these absent from spiracular line), and with black medial line running length of abdomen. *Measurements*: Tables 1–2.

Material studied.—UNITED STATES: *Texas*: Chisos Mts., Brewster Co., July 18 1921 (CAS) [holotype]. MEXICO: *México*: Tejupilco [de Hidalgo], Temescaltepec, VI-17-33 (UCB).

Other records (published).—UNITED STATES: *Texas*: 4 paratypes, same data as holotype; Sheffield, Pecos Co., July 24, [1921?] (Van Duzee 1937). MEXICO: *Guerrero*: Taxco (Brailovsky and Flores 1979).

Distribution.—Texas south into southern Mexico.

Darmistus duncani Van Duzee 1937
(Fig. 1A)

Darmistus duncani Van Duzee 1937: 29 (orig. descr.); Froeschner 1988: 10 (U.S. distrib.).

Description (based on holotype).—*Total length* (end of abdomen): 10.92 mm. *Head*: Patch of micropunctures lateral to ocelli

rounded and extending as a thin line of punctures a little way anteriorly; band of dark punctations on each side of head extending anteriorly onto antennifer but not beyond; paraclypei not meeting in front of clypeus (Fig. 1A) and with thin dark line on inner (medial) border; base of clypeus with dark punctations, apex and paraclypei with none; antennifers well-developed, yellow, with a few dark brown spots below dark band; bottom of midcephalic sulcus light or dark brown; antennal segments 1-3 dark, 4 darker than ground color; 1-3 with a few long erect setae, 4 appearing smooth but with many recumbent small setae; 1 somewhat more robust than 2-4, 4 somewhat more robust than 2-3; antennal measurements: Table 2; underside of head glabrous with scattering of small red spots. *Thorax*: Pronotum not heavily pubescent but densely punctate, dark yellow brown except lateral margins and medial "band" yellow (absence of dark punctations); pronotal transverse ridge somewhat defined; dark punctations on pronotum evenly distributed; propleuron lightly pubescent; prosternum not pubescent; all pleural margins yellow, with dark punctations dorsally (especially on propleuron), these ending sharply on mid and hind pleura, ending more vaguely on propleuron; without dark line from mid coxae to mesosternum; without dark median line on pro- and mesosternum; black median metasternal line extending posteriorly as medial scattering of dark punctations on anterior abdominal sterna; scutellum not heavily punctate, pubescent, yellow brown, apex yellow; clavus of hemelytron yellow brown, with five rows of punctations, these arranged irregularly longitudinally; corium yellow brown, lateral margin pale for nearly its entire length, apex not greatly extended (ending at level of anterior margin of abdominal sternum 6), densely punctate, pale, sometimes darkening to light brown, sometimes brown; membrane pale brown, clear. Legs lightly setose, setae erect; both coxal spots dark; femora uniformly light yellow brown, with many

small brown spots (fewer basally), without hairs; tibiae and tarsi light yellow brown, with very small brown spots; third tarsal segment and claws dark. Peritreme of meta-thoracic scent gland low, rounded, distinct, with medial groove. *Abdomen*: Nearly glabrous, sparsely beset with erect setae; pale yellow; with a few brown punctations sublaterally on anterior sterna, with red spots over surface (including spiracular line); midsternal line consisting of a medial scattering of dark spots on anterior sterna. *Measurements*: Tables 1-2.

Variation.—There is some variation in the degree of overall darkness, and in the amount of dark punctation. The specimens from the Davis Mountains (Texas) have a thin dark line laterally (as well as medially) on each paraclypeus; the holotype has only the medial lines. In a few *D. duncani* from Texas, the first three antennal segments are red, not dark.

Material examined.—UNITED STATES: *Arizona*: base of Pinal Mts. [Gila Co.], Ariz., Jun[e] [no year] [holotype] (CAS); Pinery Canyon, Chiricahua Mts. [Cochise Co.], Ariz., alt. 4,800, VIII-8 1932 (USNM); Chiric[ahua] Mts. [Cochise Co.], Ar., 10-6-32 (USNM); Baboqu[ivari] mts. [Pima Co.], Ar., 7-19-32 (USNM); Huachuca Mts. [Cochise Co.], Ariz. [no date] (USNM); S[anta] Rita Mts. [county?], Ar., 24.5 (USNM); ARIZONA: Santa Cruz Co., 2.7 mi. n. junction FR 49 and FR 61 on FR 49, 5,260', August 15, 1998 (TAMU). *Texas*: Salado, Bell Co., Tex., March 13, 1957 (TAMU); TEXAS: Brewster Co., 17 mi. east Alpine, August 15, 1992 (TAMU); [Brewster Co.] Green Gulch, Big Bend National Park, Texas, 5,700', July 24, 1968 (2 specimens) (TAMU); TEXAS: Crockett Co., 16 mi. W. Ozona, rest stop, IV-19-1997 (2 specimens) (TAMU); Lange's Mill, Gillespie Co., Texas, Apr. 22, 1970 (TAMU); Gillespie Co., Tex., V-6-46 (USNM); 4 miles sw Doss, Gillespie Co., Texas, June 6, 1969 (TAMU); TEXAS: Jeff Davis Co.,

Davis Mts. Resort, Upper Limpia Creek Cyn., 6,180 ft., IV-12-14-2002, carrion-baited pit-fall (33 specimens, all male) (TAMU); TEXAS: Jeff Davis Co., 9.8 mi. s. Kent on I18, 16-18-VIII-82 (2 specimens) (TAMU); TEXAS: Jeff Davis Co., Davis Mts. St. Pk., VIII-7-1992 (TAMU); H.O. Canyon, w. of Ft. Davis, Jeff Davis Co., Texas, August 12, 1969 (2 specimens) (TAMU); TEXAS: Travis Co., vic. Long Hollow Cr., May 7, 1994 (TAMU). MEXICO: *Michoacán*: Pericutin, 28 Nov 1944 (USNM).

Other records (published).—UNITED STATES: *Arizona*: same data as holotype [allotype]; *Colorado*; *California* (Van Duzee 1937).

Distribution.—Southwestern United States into southern Mexico.

DISCUSSION

A significant difference between *Darnistus subvittatus* and the two other species is that in the first the paraclypei meet (or in a few specimens nearly meet) in front of the clypeus. In *D. crassicornis* they clearly do not, and in *D. duncani* they nearly meet and this species thus resembles a few specimens of *D. subvittatus* (see Fig. 1). As Stål (1860: 469) writes in his original generic description of *Darnistus*, "lateralibus [i.e., paraclypei] medio [i.e., clypeus] longioribus," which is true of *D. subvittatus*, the only species then in the genus; but he also writes "contiguus," which is not true of the two subsequently described species.

Van Duzee (1937) writes of his *Darnistus duncani* that "cheeks [= paraclypei] not exceeding the tylus [= clypeus]" (original description and key). However, paraclypei not only exceed the clypeus (although not by much), they nearly meet in front of it (Fig. 1A). Although the paraclypei do not meet in *D. crassicornis*, the difference between *D. duncani* and some *D. subvittatus* is more subtle than Van Duzee indicates (1937: 29). In both species the paraclypei extend beyond the clypeus; in most *D. subvittatus* they meet, but in some *D. subvittatus*

and in *D. duncani* they do not. However, somewhat more of the paraclypei extend beyond the clypeus in *D. subvittatus* than in *D. duncani*.

The first three antennal segments of *Darnistus duncani* are darker and shinier than those of the other two species, as Van Duzee (1937) mentions. Another more subtle difference, as noted by Van Duzee (1937), is that *D. duncani* is somewhat larger (see Table 1) and darker than *D. subvittatus*; but this is not always so and, again, most clearly seen when specimens of both species are available. However, in the Davis Mountains (Texas), where the two species were collected together in pitfall traps at the same place and at the same time, the difference in size is considerable: *D. subvittatus* averaged 9.07 mm. long (N = 5) and *D. duncani* 11.65 mm. long (N = 5).

The clavus of *D. duncani* has five longitudinal rows of punctations, and those of the other two species have four. The punctations in *D. crassicornis* are arranged quite regularly; they are less regular in *D. subvittatus*, and even less regular in *D. duncani*. Another progression occurs in the peritreme of the metathoracic scent gland apparatus, which, although round and with a median groove in all species, is very low and indistinct in *D. crassicornis*, more raised and distinct in *D. duncani*, and higher and yet more distinct in *D. subvittatus*.

More obvious, and therefore better diagnostic, differences are these: Abdominal venter with black stripe along midline poorly developed in *D. duncani* and *D. crassicornis*, well developed (at least on sterna 3–5) in most *D. subvittatus* (reduced to a few black spots in one specimen from Morelos, Mexico); antennal segments 1–3 of *D. duncani* dark and polished (somewhat shiny); bucculae nearly round (slightly oval) in *D. subvittatus*, but much more oval (longer than deep) in *D. duncani* and *D. crassicornis*.

The forewing's corium extends further along the forewing in most *Darnistus subvittatus* (and both *Rinadarnistus* species)

than it does in *D. crassicornis* or *D. duncani* (Table 1, where the smaller the ratio between forewing and corium lengths the longer the latter relative to the former); this is true of most *Darmistus subvittatus*, especially those found in its northern range where it overlaps with the other two species. The relative lengths of *D. crassicornis* and *D. duncani* are the same (Table 1). The tips of the coria also vary in color: usually dark in *D. crassicornis* and *D. duncani*, but usually pale (dark medially) on the extended tip of *D. subvittatus*.

The tip of the *Darmistus crassicornis* scutellum (holotype) is whitish or pale yellow, and that of *D. subvittatus* is paler than the yellow brown ("pardo amarillento") of the scutellum itself (Brailovsky and Flores 1979); the scutellar tips of both species thus contrast with the rest of the scutellum. The scutellar tip of *D. duncani* is only very slightly paler than the rest of the scutellum, except in darker specimens, where it is contrastingly pale.

I have compared the parameres, the genital capsule's ventral rim, and the capsule's composite cuplike sclerite-plus-median projection (see Schaefer 1980b), in males of these specimens: *Darmistus duncani*, holotype; *Darmistus subvittatus*, specimens from Temescaltepec (México State) (paraclypei not meeting, long corium, heavy complete abdominal line), same (paraclypei meeting, short corium, abdominal line extending only halfway), from Morelos (paraclypei meeting, short corium, without abdominal line), and from Solano County (California) (paraclypei meeting, long corium, abdominal line extending only halfway).

In all five specimens the parameres fit snugly between the midline extension of the ventral rim and the composite cuplike sclerite-plus-median projection; the parameres are separated only by a thin internal ridge on the ventral rim's extension. The four structures together form a single unit, visible externally, pointed apically (the ventral rim extension), and well-butressed at the

base by the other structures. Presumably, during copulation the parameres separate, to guide the aedeagus on either side as it is guided ventrally by the ventral rim's extension, and as it is supported basally by the extension's broadened base and the wider composite cuplike sclerite-plus-median projection.

This combination of parameres, ventral rim extension, and composite cuplike sclerite-plus-median projection occurs also in at least two other New World micrelytrine genera (*Cydamus*, *Trachelium* [Schaefer unpublished]), and perhaps in others as well, both New and Old World. The medial extension of the ventral rim is a feature of the family Alydidae, and is more pronounced, and the extension longer and more needlelike, in Micrelytrinae: Micrelytrini than in the other groups (Schaefer 1980b).

With one exception, my measurements (Table 1) of the *Rimadarmistus* types do not differ significantly from Bliven's (1956), if he measured from head to wing tip instead of to abdomen tip (a more accurate measure of length). His measurements (mm.) are: *R. messor* holotype, length 9.28, pronotal width 1.67; allotype, length 10.5, pronotal width 1.9; *R. deprecator* holotype, length 9.12, pronotal width 1.62; allotype, length 10.124, pronotal width 1.82 (Bliven 1956). I cannot explain the difference in body length of the *R. deprecator* allotype. Van Duzee (1937) writes that each of his species is 11 mm. long, very close my measurements, and suggesting he measured to the tip of the abdomen. In general, judging from these types, *Rimadarmistus* is small, another similarity between it and *D. subvittatus*.

The relative lengths of the antennal segments (Table 2) of *D. duncani*, *D. subvittatus*, *R. messor*, and *R. deprecator* are $IV > II > III > I$; those of *D. crassicornis* are $II > IV > \sim III > I$, a sequence with which Brailovsky and Flores (1979) agree, although their specimen lacked the fourth segments. Fracker (1918) writes that the

second and fourth antennal segments of *D. subvittatus* are subequal, and each is nearly twice as large as the first, which seems not to be so; Van Duzee (1937) writes that the first is two-thirds the length of the second, which is incorrect (Table 2); and Torre Bueno (1941) writes that the second and third are nearly equal (the third "slightly longer," emphasis in original), which again is not so; Torre Bueno also says the second segment of *D. duncani* is only three-fifths as long as the third, which is clearly wrong (Table 2). Moreover, Brailovsky and Flores' (1979) measurements of *D. subvittatus* indicate $IV > II > I > III$. It is clear the earlier literature is a bit unreliable.

In addition to the holotypes of the two Van Duzee species, I have seen only one other *Darmistus crassicornis* and about 50 other *D. duncani* specimens among the more than 130 specimens I studied. *D. crassicornis* occurs from Texas into México and Guerrero States; and *D. duncani* is also found in several U.S. states (Van Duzee 1937) and as far south as Michoacán. The scarcity and restricted distribution of specimens of these two species suggest they have more specialized habitats than does the ubiquitous *D. subvittatus*.

Finally, *D. subvittatus* occurs sympatrically with both other species. The México State specimen of *Darmistus crassicornis* was collected at the same place and on the same day as several specimens of *D. subvittatus* (Temescaltepec, June 17, 1933); and specimens of both short- and long-corium *D. subvittatus* were collected in the same week at this locality. Thirty-three specimens of *D. duncani* and six specimens of *D. subvittatus* (all male) were collected in pitfall traps on the same day and at the same place in the Davis Mountains of Texas. Here the *D. duncani* specimens were about the same length as the holotype (11.65 mm., $N = 5$), but the *D. subvittatus* were considerably smaller (9.07 mm., $N = 5$; cf. Table 1).

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